

EUGENE Climate Recovery Progress Report 2015

February 2015



Introduction

In July, 2014 the City Council adopted a unique Climate Recovery Ordinance (Ordinance No. 20540) that:

- a) Clarifies and codifies existing *internal* and *community* greenhouse gas and fossil fuel goals:
 - a. Reduce total fossil fuel use (both for city operations and for the community) 50% from 2010 levels by 2030.
 - b. By the year 2020, all city-owned facilities and city operations shall be carbon neutral.
- b) Calls for a full assessment of current efforts to meet internal and community climate goals.
- c) Calls for the development of a science-based community greenhouse gas reduction goal for Council consideration.
- d) Calls for regular progress reports to Council.
- e) Establishes a process of analysis, reporting, and readjustment if *community* or *internal* targets are not met.

This Report

The Climate Recovery Ordinance specified that the City Manager was to “complete an assessment of current efforts to reach the climate action goals.” The following report includes the assessment of:

Trends in current energy use for the community and for city operations and facilities.

Progress in implementing the Community Climate and Energy Action Plan and the Internal Climate Action Plan.

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Internal Progress

Internal Climate Action Plan

The [Internal Climate Action Plan](#) (2009) contains action items for reducing the greenhouse gas (GHG) emissions associated with city operations and facilities. It serves as the roadmap for reaching two goals in the Climate Recovery Ordinance that pertain to city operations:

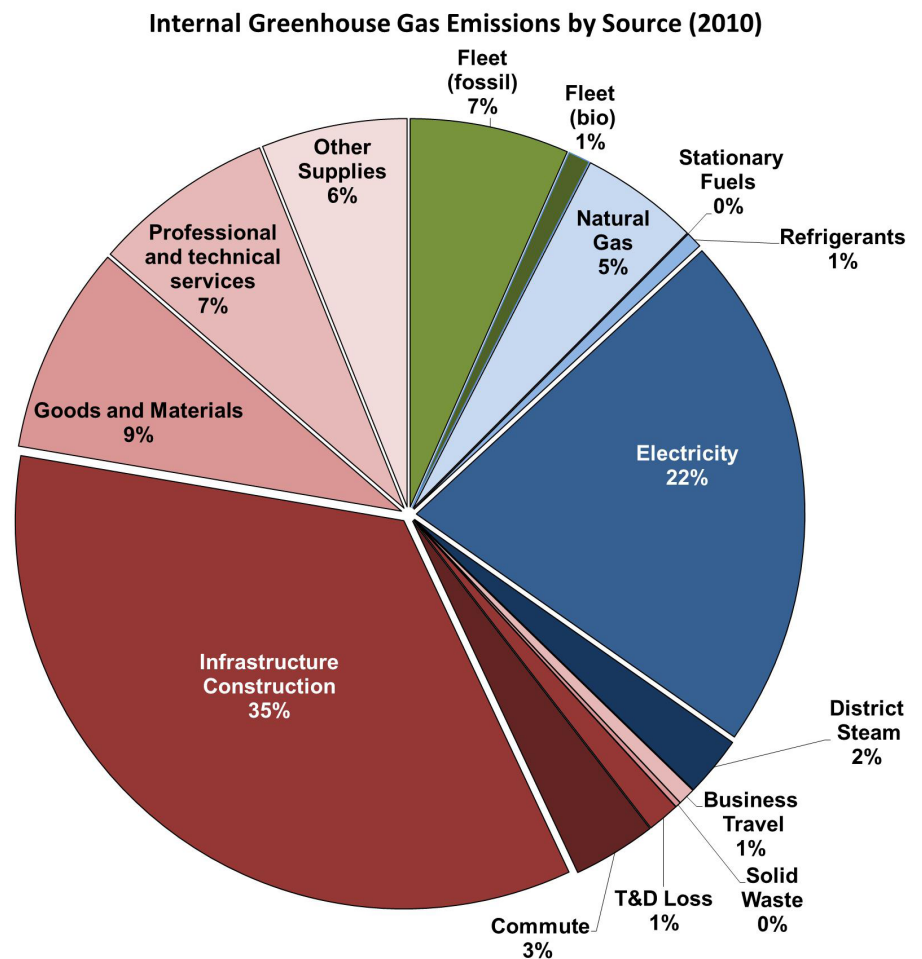
- a. Reduce total fossil fuel use (for city operations) 50% from 2010 levels by 2030.
- b. By the year 2020, all city-owned facilities and city operations shall be carbon neutral.

The Plan is designed to achieve 55% reduction in greenhouse gas emissions. To reach the final carbon neutral goal, the Plan calls for the purchase of GHG offsets for the remaining 45% of emissions. This two-part strategy was reflected in the Climate Recovery Ordinance which allows the City to meet the goal, if necessary, by “funding of verifiable local greenhouse gas reduction projects and programs or the purchase of verifiable carbon offsets for any remaining greenhouse gas emissions.” The balance of emission reductions and GHG offsets may change when the Plan is updated.

Sources of Greenhouse Gas Emissions from Internal City Operations

This chart shows the sources of greenhouse gas emissions from city operations and facilities, based on data from 2010.

- 57% of emissions are associated with infrastructure construction and other materials;
- 30% of emissions are tied to energy use in buildings including heating, lighting, and use of appliances and devices
- 8% of emissions are associated with transportation fuels
- 5% emissions from other sources

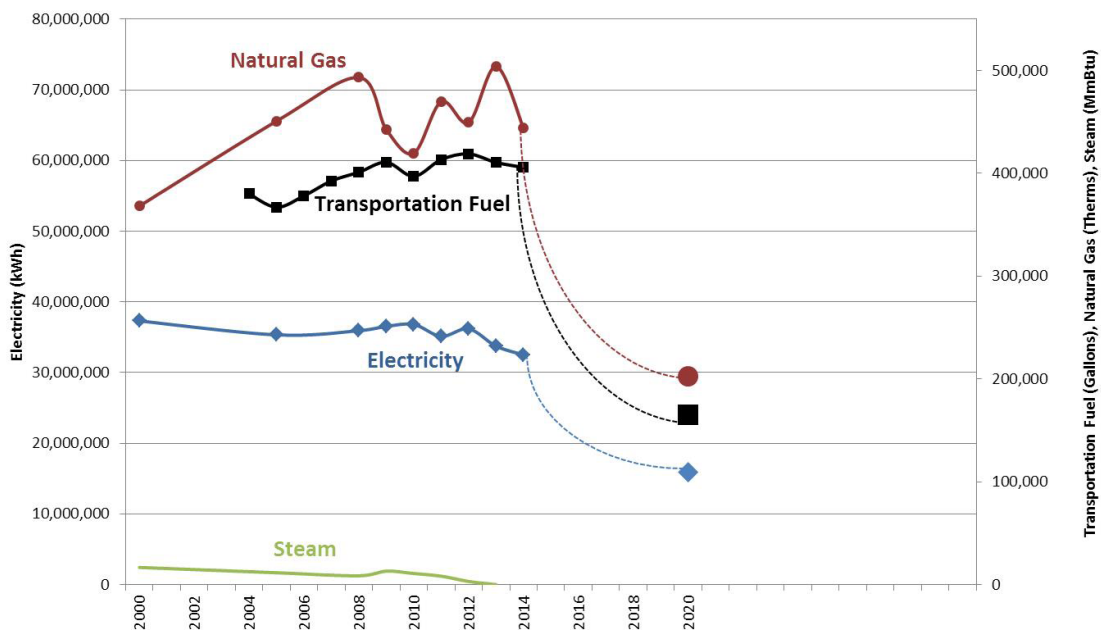


Trends in Internal Emissions Sources

While modest reductions in electricity continue and much has been accomplished in the six years since the plan was developed, overall internal energy use has leveled out since about 2008 after increasing over several years. The current trends in internal energy use do not reflect the type of emissions reductions necessary to reach the carbon neutral goal in the Climate Recovery Ordinance.

Looking at trends in energy use provides a useful but incomplete picture of what is happening with emissions. It's also important to note that emissions related to the purchase and use of goods and materials are significant and, for lack of data, are not illustrated in the trends shown below.

City of Eugene Internal Greenhouse Gas Emissions Sources



Energy and Fuel Use

The chart above shows electricity, natural gas, and transportation fuel consumption from 2000-2014. The dotted lines within the chart indicate the reductions necessary to reach the ICAP targets. Total energy use in 2014 was down 1.2% from 2013 levels.

Natural Gas

Natural gas consumption rose from 2000-2008 but has shown some decline from 2008-2014. Some significant efficiencies have been captured with the installation of high-efficiency equipment (see description below under “Highlights”), however some of these reductions may be offset due to the conversion of several buildings from the EWEB steam heat to natural gas heat. Much of the year to year variation we see in natural gas use stems from the fact that natural gas is used primarily to heat buildings and swimming pools and the amount of heating required depends on variable winter temperatures.

Electricity

Electricity use dropped a modest 1.3% from 2000-2010, but has fallen more than 11% since 2010.

Transportation Fuel

Consumption of transportation fuel increased from 2004 to 2008 but has leveled off changing little between 2008 and 2014. The departments with the largest consumption of transportation fuel are Public Works, Police and Fire/EMS.

Steam

EWEB provided steam heat to downtown customers for several decades. That service ended in 2012 due to system inefficiencies and a dwindling customer base. City facilities heated with steam such as the Hult Center, were retrofitted with other, more efficiency, heating systems.

Progress in Implementing ICAP

Highlights

Important work is going on throughout the organization to implement the ICAP action items. Here are a few highlights.

Fleet efficiency and fuel use

Operating the vehicles in the City fleet requires the consumption of over 400,000 gallons of liquid fuel each year. Several actions have been taken to reduce fuel consumption.

Police – The Department has replaced 50% of its investigation vehicles with more fuel-efficient hybrid sedans. EPD is also investing in a new patrol car that is expected to achieve a 35% increase in fuel efficiency over the Crown Victoria. Once the replacement program is complete in 2018, fuel savings should total approximately 67,000 gallons/year or about \$200,000.

Energy efficiency retrofits

City Facilities has overseen a number of significant energy efficiency projects in recent years. These efforts are on track to produce city energy savings of \$200,000/year, improve equipment reliability and decrease maintenance costs. Some of these projects include:

Pool upgrades – Sheldon and Echo Hollow pools received a variety of improvements including lighting upgrades, automatic pool blankets, upgrades to ventilation and HVAC systems and retro-commissioning of a solar water heating system (Sheldon).

Steam conversion – several downtown buildings including the Hult Center, Atrium, Overpark and Arcade were taken off the failing and inefficient EWEB steam system. Most were retrofitted with new high-efficiency natural gas systems but in the case of the Arcade, no new heating system was required. Instead, the existing ground-source heat pump (a geothermal heating technology) was upgraded thereby avoiding the installation of a heating system reliant on fossil fuel.

Small Heating, Ventilation and Air Conditioning systems - a package of upgrades was made to smaller HVAC systems at numerous locations. Many of the systems were switched from natural gas to all-electric to support efforts to reduce fossil fuel use.

Upcoming projects

Street lights

The Public Works Department is moving forward with implementation of a phase one street lighting retrofit project that will reduce energy use and greenhouse gas emissions by replacing approximately 5,000 existing 70W and 100W high pressure sodium (HPS) fixtures with LED fixtures. The City operates and maintains approximately 9,400 street lights. As LED technology improves and costs fall, the City will analyze the potential for future phases of the retrofit project to replace higher wattage fixtures.

Lighting retrofit pilot project

Recently, LED lighting has advanced to the point where it is both cost-effective and more efficient than current fluorescent bulbs for general area lighting. LED lighting also lasts 50% longer than fluorescent. Facilities staff is working to upgrade, in the course of a phased project, a large part of the fluorescent lighting in buildings supported by the general fund. This project would prioritize these upgrades based on the hours of use, current fixture condition and occupant lighting needs. The cost of energy for lighting could be reduced 10-30%.

New City Hall

The new City Hall currently under construction is designed to achieve significantly greater energy performance than its predecessor. Plans call for a net-zero-ready building that will be more efficient and rely on renewable energy generation to reach this performance goal. This would dramatically reduce operating expenses--a savings of approximately \$250,000 annually--and allow the new City Hall to operate as a net-zero building in the future.

ICAP status

The City of Eugene is a leader in using energy wisely. The City was an early adopter of hybrid technology and has continued to adopt more fuel efficient models throughout the fleet as they become available. For decades City Facilities have undergone regular energy efficiency retrofits. Upgrades to the heating and lighting systems of city buildings continue to capture the latest improvements in technology. Despite these efforts, trends in electricity, natural gas and transportation fuel use indicate that the City is not on track to meet the goal for reducing greenhouse gas emissions.

In many places the “low hanging fruit”, those changes or investments that have a quick payoff in energy savings, have already been captured. There are still energy savings to be realized, but they will require longer payback periods, new technologies, and out-of-the-box thinking.

The Internal Climate Action Plan is now six years old and in need of updating. Promising new technologies and energy management approaches need to be assessed and incorporated. It will be important to consider actions that make real reductions in energy use, not just substitutions, to capture the greatest cost savings and greenhouse gas reduction benefits into the future.

Community Progress

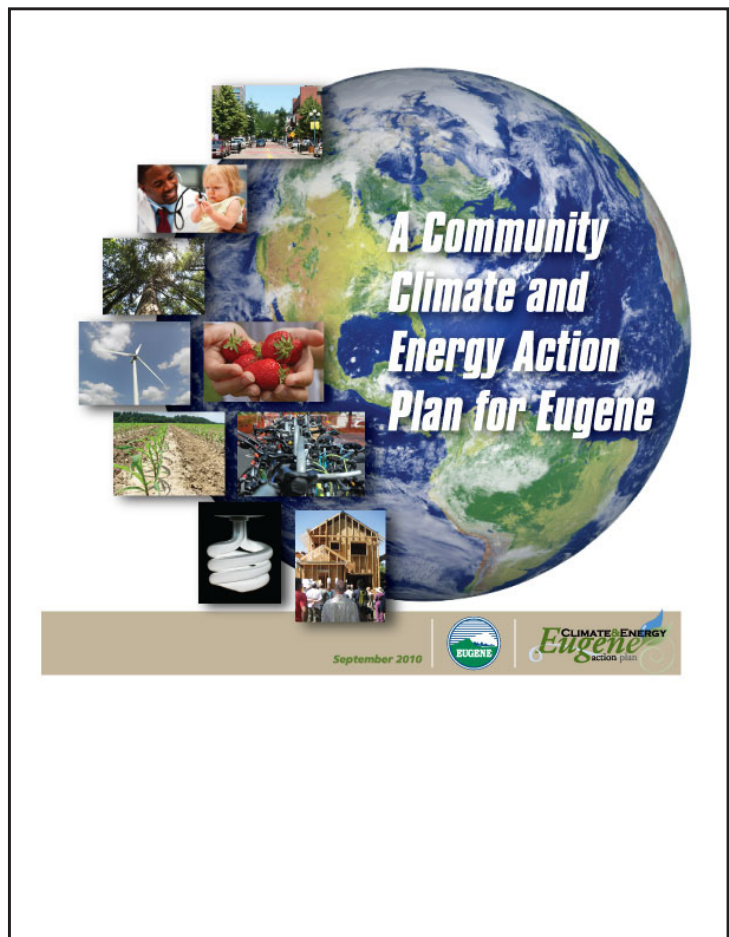
Community Climate and Energy Action Plan

The [Community Climate and Energy Action Plan](#) (CEAP), developed in 2010, contains three separate but overlapping goals, one of which was codified in the Climate Recovery Ordinance:

1. Reduce community-wide greenhouse gas emissions 10 percent below 1990 levels by 2020.
2. Reduce community-wide fossil fuel use 50 percent by 2030 (*included in the Climate Recovery Ordinance*).
3. Identify strategies that will help the community adapt to a changing climate and increasing fossil fuel prices

Actions in the Plan are grouped into six categories:

Buildings and Energy;
Food and Agriculture;
Land Use and Transportation;
Consumption and Waste;
Health and Social Services, and
Urban Natural Resources.

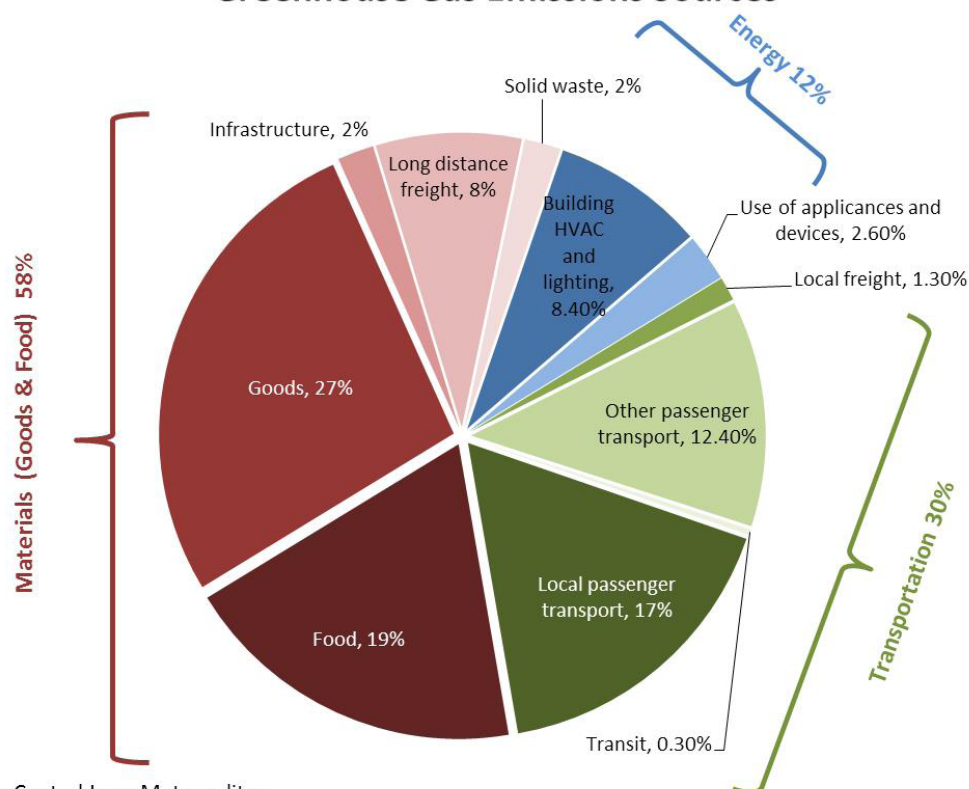


Sources of Greenhouse Gas Emissions in the Community

The last comprehensive assessment of community greenhouse gases emissions in Eugene was completed by City of Eugene staff in 2007 and based on 2005 data. More recently, the Central Lane Metropolitan Planning Organization completed a regional greenhouse gas inventory¹ in 2010 to inform long term regional planning efforts. The inventory indicates that:

- 58% of emissions are associated with the production, transportation, and disposal of goods and food
- 30% of emissions come from local passenger and freight transportation
- 12% of emissions are tied to energy use in buildings including heating, lighting, and use of appliances and devices

Eugene-Springfield Metropolitan Region Greenhouse Gas Emissions Sources



Source: Central Lane Metropolitan Planning Organization (2010)

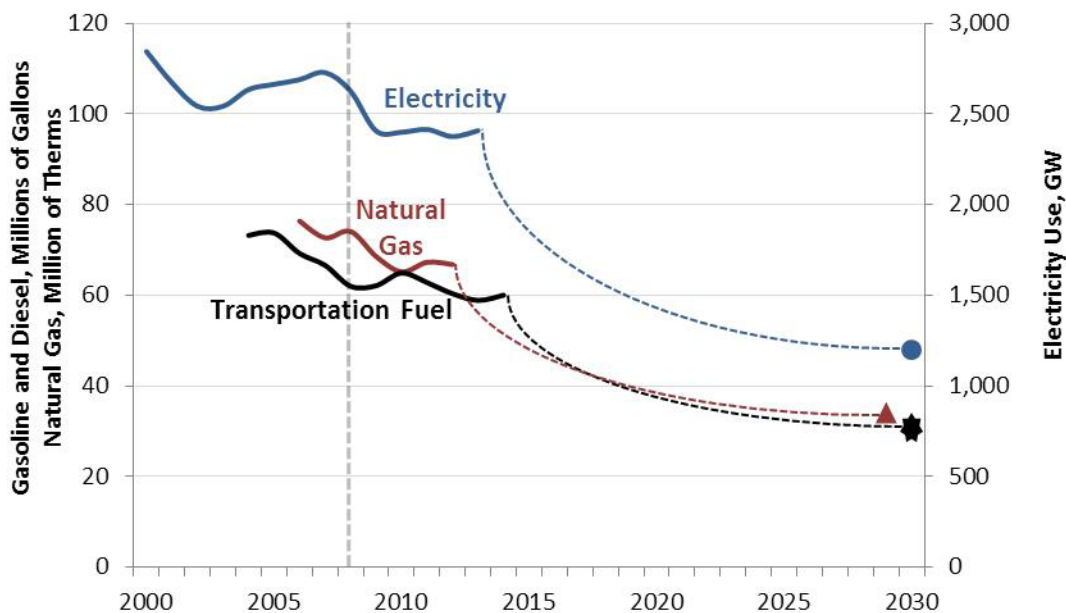
¹ Lane Council of Governments Regional Greenhouse Gas Inventory (2010) <http://www.lcog.org/DocumentCenter/View/410>

Trends in Community Emissions Sources

Overall, the general trend of energy consumption in Eugene is moving steadily downward. It is worth noting that these trends began several years before the economic downturn that occurred in the last half of 2008.

Looking at trends in energy use provides a useful but incomplete picture of what is happening with emissions. It's also important to note that emissions related to the purchase and use of goods and food are significant and, for lack of data, are not illustrated in the trends shown below.

Trends in Community-wide Greenhouse Gas Emissions Sources in Eugene



The above chart shows total annual electricity used in GW, natural gas use in Therms, and gallons of gasoline and diesel purchased in Eugene.

Electricity use

Electricity use reflects consumption in EWEB service territory. Electricity use fell 15% between 2000 and 2013. Recent reductions are due largely to reduced industrial electricity demand and milder winter temperatures.

Natural gas burned

Though consumption varied little between 2010 and 2012, it fell more than 12% between 2006 and 2012 (the most recent date of available data). Reduced demand is largely attributed to reduced industrial use as well as milder winter temperatures. While natural gas consumption data is not available for 2013 and 2014, use dropped less than 1% between 2011 and 2012.

Gallons of gas and diesel burned

In Eugene gasoline and diesel consumption dropped more than 19% between 2004 and 2013. Over that same time, the population of Eugene grew by 11% meaning per capita fuel reductions were more than 25% in nine years. Consumption rebounded in 2014, however, increasing by almost 2% in 2014.

Progress in Implementing CEAP

Highlights

EmX

LTD introduced the local bus rapid transit system (BRT), EmX, to the Eugene - Springfield area in 2007 in an effort to make the local transit system more efficient and convenient for riders. The first EmX line from downtown Eugene to downtown Springfield exceeded 20-year ridership projections within its first year of operation. The second EmX line to Gateway opened in January 2011 and construction of the West Eugene EmX line began in 2014 with service expected to begin in 2017. When completed, the regional system will consist of some 60 miles of connected BRT serving the Eugene - Springfield area.

University of Oregon net-zero increase policy

The University of Oregon began new campus-wide building standards in August 2011. According to a University of Oregon press release, “The University of Oregon adopted sustainability standards that will cap energy use from new development, resulting in a net-zero increase in energy use despite continued construction on its 295-acre campus. New projects will be required to meet LEED Gold certification and must produce 35 percent greater energy savings than the state’s building code requires.”

Bike and Pedestrian improvements

In 2012, The City of Eugene, with funding from a number of state and local partners, constructed a world class two-way buffered bicycle lane on Alder street near the University of Oregon. The project included widened sidewalks, colored pavement, and bicycle-only signals. Safety, reduced energy use, and economic stability for nearby businesses were important outcomes of the project. In 2014 the City of Eugene Public Works won a Sustainable Practices award from the Oregon Chapter of the American Public Works Association for upgrading and adding accessible sidewalk ramps as part of city-wide pavement preservation projects. Over 470 sidewalk ramps were upgraded or added in 2014, ensuring barrier free pedestrian access to all residents regardless of physical ability, stage of life, or economic status. These are just two of many improvements made to the local non-motorized transportation system in recent years.

Re:think Business program

The City of Eugene provides support for the RE:think Business program offered by BRING Recycling. This is a free, comprehensive program for Lane County businesses that provides confidential advice and support on practical ways to trim waste, reduce energy use and save money. The program helps increase business efficiency by reducing waste and energy and the associated environmental impacts. Businesses can also get certified through the program for their achievements in reducing their impact. The program currently has 73 participating businesses with 12 newly certified in 2014.

CEAP status

The [2013 Progress Report](#) includes an update for each action in the Community Climate and Energy Action Plan. For actions where information was available in 2012:

- 12% were completed
- 41% were in process
- 32% were getting started
- 15% had no movement

The Community Climate and Energy Action Plan is now 5 years old and due for an update. In addition to updating the plan, the actions within the plan need to be analyzed for their potential fossil fuel/GHG reductions to aid in prioritization and for determining what additional actions are needed to reach Council adopted fossil fuel goals.

Considerations

National, regional, state and local conditions heavily influence action on climate change in Eugene. Economic conditions, political trends, consumer prices, regulations and many other factors play an important role in what we achieve locally. Some of the more influential circumstances that provide context for this Progress Report are described below.

Carbon tax

The states of Washington, Oregon, and California along with British Columbia have committed to putting a cost on carbon pollution in an agreement signed in Oct. 2013. California and British Columbia already have “cap and trade” systems and Governor Inslee has proposed something similar for Washington. A recent study completed for Oregon found that a carbon tax would have relatively small impacts on employment and output while raising revenue and reducing greenhouse gas emissions. A price on carbon could become part of the state strategy to meet the targets within the Federal Clean Power Plan (see below).

Federal Clean Power Plan

The U.S. Environmental Protection Agency (EPA) in 2014 launched the Clean Power Plan to reduce carbon dioxide emissions from existing fossil fuel power plants. Oregon will develop a plan to meet the Federal emissions target which calls for reducing emissions in the state by 48% by 2030. In addition to addressing emissions from power plants, the EPA Plan allows states to reach the goal through investments in renewable energy and energy efficiency that reduce demand on existing fossil fuel power plants.

Clean Fuels Standard

In January 2015, the Oregon Environmental Quality Commission approved rules which lay out the next phase of the Oregon Clean Fuels Program. The rules are aimed at reducing greenhouse gas emissions by lowering the carbon content from Oregon's transportation fuels 10 percent over a 10-year period. The requirement will expire however, unless the legislature acts this session to remove a sunset clause.

Transportation System Plan

The City of Eugene is updating its Transportation System Plan (TSP) to improve the transportation system over the next 20 years. The plan covers all modes of transportation and will guide investments in new projects and infrastructure to meet the community's transportation needs. The Plan is currently under development and is expected to be adopted by Eugene City Council in 2015. It contains policies and goals, as well as a list of construction projects, which will have a direct impact on fossil fuel use and greenhouse gas emissions. Some examples include 1) complete streets policy for accommodating multiple transportation modes on city streets; 2) goal for doubling bike and pedestrian mode share; and, 3) priority for improved transit service in Key Transit Corridors.

Scenario Planning

State legislation in 2009 required local governments in central Lane County to select a preferred transportation scenario that accommodates planned population and employment growth while achieving a reduction in greenhouse gas emissions from passenger vehicles. The scenario, due to be selected in spring of 2015, is expected to include strategies for transit, active transportation (bicycling and walking), pricing, parking management, roads, fleet and fuel changes, and education and marketing. While Eugene is not required to implement the scenario, it provides an important pathway for GHG reductions needed to meet the goals of the Climate Recovery Ordinance.

Energy prices

Relatively low energy prices mean energy conservation efforts are less cost effective in the short run.

The price of natural gas remains low

After peaking in 2006, real natural gas prices fell more than 30% bottoming out in 2013 and rebounding only slightly in 2014².

The price of electricity

Nationwide, the price of residential electricity has been fairly stable over the past decade

Crude oil prices drop

Global crude oil prices and the associated cost of transportation fuels dropped significantly at the end of 2014. From a 2014 high in July just above \$100 per barrel, crude oil prices fell below \$50 per barrel in January 2015. Gasoline prices fell accordingly and in January 2015 a gallon cost \$2.00 at several stations in the Eugene/Springfield area, the lowest price in over five years³.

EWEB Integrated Electric Resource Plan

In 2011 EWEB developed an Integrated Electric Resource Plan (IERP) to inform the agency's long-term planning and investments. Conservation is EWEB's preferred source for additional energy resources and the first choice in regional resource planning efforts. Conservation acquisition, however, is directly tied to expected energy demand. With little additional energy demand forecast in coming years, EWEB has re-calibrated its program offerings to balance conservation with load growth, resulting in scaled back incentives compared to previous years. However, program eligibility requirements have expanded to include customers with fossil fuel-based systems who upgrade to efficient electric heating systems and water heaters. EWEB continues to test customer interest in demand management programs that focus on when energy is used to limit exposure to market purchases that are more carbon intensive while optimizing their existing resource portfolio. For example, a time of use pricing pilot program to encourage energy use during 'off-peak' hours will begin this year.

2014: The hottest year since 1880

According to analysis conducted by National Oceanic and Atmospheric Administration (NOAA) 2014 was the hottest year on record since 1880. Nine of the ten warmest years in the 135-year period of recordkeeping have occurred since 2000.

² US Energy Information Administration <http://www.eia.gov/forecasts/steo/realprices/>
³ The Register Guard, January 22, 2015, Gas falls below \$2 at several stations



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